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OHIO WORKSHEET FOR WHOLE HERD BUYOUT PROGRAM

BY

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Ohio Worksheet for Whole Herd Buyout Program*

by

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Liability Disclaimer

The worksheet and accompanying discussion are based on information which was available in early February. Neither The Ohio State University, the authors, nor the Ohio Cooperative Extension Service assumes responsibility for the accuracy of bids calculated by using these worksheets, regardless of whether or not bids are accepted by USDA. It is the sole responsibility of each farmer to formulate bids. Although the worksheet has been tested and reviewed, the authors, The Ohio State University and the Ohio Cooperative Extension Service makes no warranty or representation, either express or implied, with respect to the worksheet, its quality, performance, merchantability, or fitness for a particular purpose. As a result, the worksheet and accompanying discussion are licensed "as is", and you the licensee are assuming the entire risk as to their quality and performance.

Introduction

Whether or not to participate in the Whole Herd Buyout Program is a major decision because it is a decision about whether or not to continue milk production. Participation requires sale of all female dairy animals and agreement to not use the farm's facilities for milk production for five years. In return for not producing milk, participants will receive payments tied to base period production and a bid price per hundredweight of milk. Which farmers can participate will depend on selection by the USDA using the bids and other information submitted by farmers.

Bids should not be submitted without careful thought as to their implications for the farm business and family. The first step is development of an understanding of the Whole Herd Buyout Program, the current economic outlook for the dairy industry, and the farm and nonfarm opportunities available. No two farms or families are alike. Therefore, one cannot depend on neighbors or general guidelines for information and data on which to base a Whole Herd Buyout decision.

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* The worksheet discussed in this publication is a revised Ohio form of a worksheet developed by the National Dairy Herd Buyout Extension Program Committee and published as Part Va of the materials prepared by this committee. For a comprehensive set of worksheets and explanation, see "Worksheets for Calculating Breakeven Bids for the Milk Production Termination Program" by George Casler and Wayne Knoblauch, Cornell University, Ithaca, New York 14853, A.E. Ext. 86-7, January 1986.

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A second important step before proceeding to use of the worksheet and calculation of a bid is careful consideration of goals. Why are you milking cows is an important question to be discussed. "Goals and Your Participation in the Whole Herd Buyout Program" by Bernard Erven and Larry Hamm, ESO 1235 is available from the Ohio Cooperative Extension Service to help you rate your goals. Two worksheets relative to goals are included. Completion of these worksheets will help you decide whether or not to proceed with a detailed economic analysis of participation in the Whole Herd Buyout program.

The worksheet and discussion in this publication are designed to assist in evaluating the situation of a specific farm. Therefore, the worksheet is a general guideline for the analysis, rather than a detailed guide of all the possible factors and specific characteristics which should be considered in each case. However, it is assumed that a participant in the program will not return to milk production at any time in the future. The worksheet can be used to calculate a per hundredweight dollar figure at which an individual would be economically indifferent between participation and nonparticipation in the program. Determination of the bids to be submitted follows completion of the worksheet, and should follow consideration of the risk of bids being too high and not accepted, or too low causing unnecessary loss of payment.

Overview

The worksheet is divided into three parts:

Part 1: Net worth loss from participation in the whole herd buyout

Part 2: Change in net income per year

Part 3: Total dollars per cwt. of base to be indifferent between participating and not participating

The worksheet is based on the following relationship:

$$\left[\frac{\left(\frac{\text{ANWL} + \text{ACNI}}{\text{1-ATAX}}\right)}{\text{Base Period Production}}\right] \times 5 \text{ years} = \text{Total dollars per cwt. to be indifferent between participating and not participating}$$

where: ANWL = annual net worth loss
ACNI = change in annual net income
1-ATAX = 1 minus expected average annual income tax rate on whole herd buyout payments

Detailed Discussion

PART 1

Participation in the whole herd buyout could result in loss of net worth for two reasons: (1) selling dairy cattle for slaughter rather than breeding

and (2) selling dairy facilities and real estate for non-dairy use rather than dairy use. Lines 1-9 are used to calculate loss in net worth.

Line 1

Lines 1 and 2 are expected net returns from the sale of all female dairy animals. For Line 1, start with an estimation of the market value of all female dairy animals if sold as dairy animals. From this market value subtract commissions and other sale expenses. Also subtract any income tax and investment credit recapture that would be associated with the sale.

Line 2

With participation in the whole herd buyout, all female dairy animals would have to be sold for slaughter or export. Estimate the value of the animals if sold for slaughter, as in Line 1, and subtract sale expenses and income tax to get a net value.

Line 3

Line 1 minus Line 2 equals Line 3. This line measures the loss in net worth due to sale for slaughter rather than as dairy animals.

Lines 4, 5 and 6

These three lines are similar to Lines 1, 2 and 3 except they are concerned with the loss in net worth resulting from sale of facilities and real estate without dairy production rights as compared to selling the assets as a productive dairy farm.

Since sale of milk production equipment, such as bulk tanks, milking machines and pipelines, is permitted for those in the program, their sale would not affect calculation of loss in net worth and should be ignored in Lines 4, 5 and 6.

Line 7

Line 3 + Line 6 equals total loss in net worth as a result of sale of dairy cattle, real estate and facilities stemming from participation in the whole herd buyout. It is an after-tax 1986 figure.

Lines 8 and 9

The sum calculated in Line 7 needs to be converted to an annual figure to be combined with annual changes in net income which will be calculated in Part 2. This annualizing in Lines 8 and 9 takes into consideration the fact that a dollar received in 1986 has greater value than a dollar not received until 1989, i.e. the application of the time value of money.

Table A shows the factors to convert a 1986 lump sum to a five year stream of annual payments. The higher the interest rate, the higher the factor because of the greater sacrifice of waiting for the money. To illustrate,

assuming a 10 percent interest rate, a person would be indifferent between receiving $1 today and receiving 26.4 cents in each of the next five years. Or at the same interest rate, a person would be indifferent between receiving $10,000 today (Line 7) and $2,640 ($10,000 x .264) in each of the next five years. In this example, Line 8 would show .264 and Line 9 $2,640.

The annualizing of the figure in Line 7 can also be thought of as a loan you are making by participating in the whole herd buyout. You are giving up a lump sum now through loss of net worth and getting it back with interest over five years. Again, using an interest rate of 10 percent, the loan is for $10,000 and you are getting the money back in five annual payments of $2,640 ($10,000 x .264). You are getting back a total of $13,200 ($2,640 x 5 years) $3,200 of which is interest ($13,200 - 10,000). The interest is your payment for waiting to get back all of your $10,000.

The interest rate used to select an annualizing factor should be an after tax return from the next best investment to dairy farm investment that has a similar level of risk.

The annualizing in Lines 8 and 9 assumes that the whole herd buyout payments will be received in five equal annual payments. The annualized net worth would be different if one of the other three options were chosen.

PART 2

Some dairy farmers have already decided to quit dairy farming. They are using the worksheet only to determine the net worth loss from participating in the whole herd buyout. These farmers should not complete PART 2.

For those deciding whether to continue dairy farming or discontinue through the whole herd buyout, change in net income per year needs to be calculated in PART 2.

The calculations in PART 2 assume that after the five years of the whole herd buyout, your aftertax net income would be the same as your net income after taxes would have been had you continued producing milk. This assumption makes the five years of the whole herd buyout a transition to work off the farm, farming without dairy, or retirement, that leaves you in an income position as good as you would have had in dairying after five years. Never returning to dairying is also a part of the assumption about income after five years.

Line 10

This line requires projection of total receipts, total expenses and income taxes for the next five years with continued milk production.

Estimated receipts should reflect your estimations of milk price and prices of other items to be sold. Changes in farm production (for example, more cows, more milk per cow, or higher yields) should also be reflected. Nonfarm net income including salaries and wages, retirement income and interest income should be included. In most cases, both husband and wife's net nonfarm

income should be included. Major categories of farm receipts to include are milk sales, cattle sales, crop sales, land rental receipts and custom work. Your farm accounting system or last year's Schedule F should suggest the additional categories which are necessary.

Estimated expenses should reflect expected changes in your farm business over the next five years. Inflation, changes in technology, and changes in interest payments should be given special attention. The major groups of expenses are: feed, machinery, livestock, crops, real estate taxes, insurance, utilities, rent, interest, repair and depreciation.

"Dairy Outlook: 1986-1990" by Robert Jacobson, et al., available from The Department of Agricultural Economics of The Ohio State University includes a section, pages 8-10, on factors for adjusting receipts and expenses, and guidelines for projecting average net income.

Total receipts for a typical year minus total expenses for a typical year equals net income before taxes. Subtract expected income taxes to get net income after taxes to enter in Line 10.

Line 11

Line 11 is similar to Line 10 except the estimates are made assuming no milk sales, no dairy cattle sales and no milk production expenses.

To complete Line 11, you need to determine what you would do with your capital, labor and other farm assets if you had no dairy cattle on the farm. If you were to work off the farm, what would you earn? If you continued farming, what would your net income be? Keep in mind that you would have money from sale of dairy cattle and milking equipment to pay off some or all of your debt. Therefore, interest expenses could be quite different with the whole herd buyout program. Proceeds from the sale of farm assets could also be used to add new farm enterprises, increase the size of existing nondairy enterprises or for investments off the farm.

Line 12

Line 12 measures the change in after tax net income for a typical year in the five years of the whole herd buyout program.

PART 3

Part 3 combines the effects of participation on annual net worth and annual net income and uses the figures to calculate the total breakeven price per cwt. of base at which the producer would be indifferent economically between participation and nonparticipation in the whole herd buyout program. The point of indifference must not be confused with bid level. The breakeven point is intended only for use as a reference in determining a bid price.

Lines 13 and 14

Lines 13 and 14 are transferred from Lines 9 and 12 respectively.

Line 15

By adding Lines 13 and 14, the necessary after tax annual whole herd buyout payment to be indifferent is determined. This is the net after tax payment needed in each of the five whole herd buyout years to offset exactly the calculated annual net worth loss and change in annual net income.

If the number calculated in Line 15 is negative, there is no need to continue with the worksheet because even a zero bid would be better than continuing with milk production.

Lines 16 and 17

Line 15 must be converted from an after income tax estimate to a before income tax estimate. Whole herd buyout payments would be considered farm income and therefore subject to self-employment taxes as well as Federal and State income taxes. The tax management implications of the payments would be the same as for any other farm income subject to income taxation.

The conversion from an after tax to a before tax figure requires estimating the likely tax rate to be paid on the buyout payments. Subtract that rate (as a decimal, i.e. 15% = .15) from 1 and divide the remainder into the amount on Line 15. For example, if you expect your average annual income tax rate to be 20% over the five year period, you will be able to keep 80% (or .80) of all income after taxes are paid. If the Line 15 value is $10,000 and the expected average tax rate is .20, the Line 16 entry would be .80 and the Line 17 entry would be $12,500 ($10,000 divided by .80). On a before tax whole herd payment of $12,500, the after tax value would be $10,000 if the tax rate were .20.

Line 18

Base period production is the lesser of milk produced from July, 1984 through June, 1985 or milk produced in calendar year 1985. All bases will be determined as hundred pounds (or cwts.) of milk marketed during the base period. Additional adjustments will be made to account for females sold for purposes other than slaughter or export between January 1, 1986 and the date that the bid is submitted by the producer at the local ASCS office. It is likely that this adjustment will be a decrease of 20,000 pounds (200 cwt.) of milk per animal sold for other than slaughter or export. Adjustments will also be made for significant decreases in number of cows from January 1, 1985 or January 1, 1986 to the date that the bid is submitted. There will be no upward adjustments in base period milk production for any reason.

Line 19

Line 17 divided by Line 18 equals the dollars per cwt. per year to be indifferent between participation and nonparticipation in the whole herd buyout.

Lines 20 and 21

Since the buyout program is for five years, the annual figure calculated in Line 19 needs to be converted to a total dollars per hundredweight figure by multiplying by 5. The resulting calculation is the total dollars per cwt. of base spread over the five years to be indifferent between participation and nonparticipation.

The value calculated in Line 21 is one possible bid for submission to ASCS. However, a higher figure than this could be bid if a premium is desired to make you better off than if you did not participate. A lower bid is possible if you are concerned about your bid not being accepted. An accompanying publication by Eddy LaDue titled, "Formulating a Bidding Strategy for the Milk Production Termination Program," Cornell University, is recommended for a more detailed discussion of bidding strategies.

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ABBREVIATED WORKSHEET FOR WHOLE HERD BUYOUT PROGRAM

PART 1

1. NET VALUE OF DAIRY CATTLE IF SOLD FOR BREEDING (AFTER INCOME TAXES AND SALES COSTS) _____

2. NET VALUE OF DAIRY CATTLE IF SOLD FOR SLAUGHTER (AFTER INCOME TAXES AND SALES COSTS) _____

3. LOSS IN NET WORTH DUE TO SALE OF CATTLE FOR SLAUGHTER (Line 1 - Line 2) _____

4. NET VALUE OF FACILITIES AND REAL ESTATE IF SOLD FOR DAIRY PURPOSES (AFTER INCOME TAXES AND SALES COSTS) _____

5. NET VALUE OF FACILITIES AND REAL ESTATE IF SOLD FOR NON-DAIRY PURPOSES (AFTER INCOME TAXES AND SALES COSTS) _____

6. LOSS IN NET WORTH DUE TO SALE OF FACILITIES AND REAL ESTATE FOR NON-DAIRY PURPOSES (Line 4 - Line 5) _____

7. TOTAL LOSS IN NET WORTH (Line 3 + Line 6) _____

8. ANNUALIZING FACTOR (FROM TABLE A) _____

9. ANNUAL NET WORTH LOSS WITH PARTICIPATION ASSUMING 5 EQUAL ANNUAL PAYMENTS (Line 7 + Line 8) _____

TABLE A

AMORTIZATION TABLE TO RETIRE A LUMP SUM WITH ANNUAL PAYMENTS OVER FIVE YEARS

PERCENT INTEREST								
6	7	8	9	11	12	13	13	14
.237	.244	.250	.257	.264	.271	.277	.284	.293

PART 2 *

10. AVERAGE ANNUAL NET FARM AND NON-FARM INCOME AFTER TAXES WITH CONTINUED MILK PRODUCTION FOR NEXT FIVE YEARS _____

11. AVERAGE ANNUAL NET FARM AND NON-FARM INCOME AFTER TAXES WITH NO MILK PRODUCTION FOR NEXT FIVE YEARS (NOT INCLUDING MPTP PAYMENT) _____

12. CHANGE IN AFTER TAX NET INCOME PER YEAR (Line 10 - Line 11) _____

* COMPLETE PART 2 ONLY IF YOU ARE DECIDING BETWEEN CONTINUING DAIRY FARMING OR PARTICIPATING IN THE WHOLE HERD BUYOUT. DO NOT COMPLETE IF YOU ARE DEFINITELY DISCONTINUING YOUR DAIRY OPERATION.

PART 3

13. ANNUAL NET WORTH LOSS
(Part 1 : Line 9) _____

14. CHANGE IN ANNUAL NET INCOME *
(Part 2 : Line 12) _____

15. AFTER TAX ANNUAL AMOUNT NEEDED FROM GOVERNMENT MPTP PAYMENTS ** _____
(Line 13 + Line 14)

16. 1 - EXPECTED AVG. ANNUAL INCOME TAX RATE ON THE ANNUAL GOVT. MPTP PAYMENT _____

17. ANNUAL PAYMENT NEEDED TO BE INDIFFERENT BETWEEN CONTINUING AND DISCONTINUING MILK PRODUCTION _____
(Line 15 Divided By Line 16)

18. BASE PERIOD PRODUCTION (CWT) _____

19. BREAKEVEN DOLLARS PER CWT PER YEAR _____
(Line 17 Divided By Line 18)

20. YEARS OF PROGRAM 5

21. TOTAL DOLLARS PER CWT TO BE INDIFFERENT BETWEEN PARTICIPATING AND NOT PARTICIPATING IN THE WHOLE HERD BUYOUT _____
(Line 19 Multiplied By Line 20)

* ENTER 0 IF YOU ARE DEFINITELY DISCONTINUING MILK PRODUCTION REGARDLESS OF PARTICIPATION OR NON-PARTICIPATION IN THE WHOLE HERD BUYOUT PROGRAM.

** IF NEGATIVE, NO GOVERNMENT PAYMENT IS NEEDED TO IMPROVE FINANCIAL POSITION BY DISCONTINUING MILK PRODUCTION. IF SO, DO NOT CONTINUE WITH THIS WORKSHEET.